



Soil Remediation Standards Rule: Proposed Revisions

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Soil Rule

- Current rule effective December 1997
- Applies to all ADEQ regulated soil cleanups
- Options for predetermined or site specific remediation standards
- Standards must protect groundwater and ecological receptors
- Cannot exhibit hazardous waste characteristics
- VEMUR requirements

Revisions are Necessary Because:

- 1996 and earlier toxicity data
- VEMUR language inconsistent with statute
- Only soil solids sampling can be used for compliance
- Letter of completion is not consistent with statute
- Exposure assumptions out of date
- Applicability of HBGLs

Proposed Revisions: Definitions

- Modified for clarity and consistency with statutory changes
- Added: Declaration of Environmental Use Restriction, non-carcinogen and reference dose
- Removed: Cancer group, Greenfields Pilot Program and Voluntary Environmental Mitigation use Restriction



Proposed Revisions: Applicability

- Characterized sites which have initiated remediation or a risk assessment before the effective date of the rule have 3 years to meet closure requirements
- New standards apply to all sites not conducting remediation or a risk assessment at the time the rule becomes effective
- Applicability doesn't extend to activities conducted pursuant to orders or other binding agreements that identify a cleanup standard




Proposed Revisions: Compliance Sampling

- Definition of soil expanded to include moisture and pore space
- Authorizes, at ADEQ discretion, estimation of total soil concentrations by using soil vapor concentrations



Proposed Revisions: Predetermined Standards

- Use updated toxicity data with new hierarchy
- Exposure assumptions consistent with EPA Region 9 PRG's
 - Dermal absorption factors
 - Adherence factors
 - Exposed skin surface area
- Residential ingestion for adults modified



Proposed Revisions: Predetermined Standards

- List of contaminants
 - Additions: new toxicity data has been established. Examples: perchlorate, trimethylbenzenes
 - Deletions: new data showing no toxicity or contaminants combined. Examples: vanadium sulfate and vanadium pentoxide replaced with total vanadium and total chromium removed

Proposed Revisions: Predetermined Standards

- Excess lifetime Cancer Risk:
 - 10^{-5} for possible or probable human carcinogens under most conditions
 - 10^{-6} if one or more of the following exists:
 - 10 or more carcinogens detected above laboratory detection limit
 - Current or reasonably foreseeable future use is a school/day care/long term care facility
 - Any known human carcinogen

Comparison of Predetermined Standards

Contaminant	Existing SRL		Proposed SRL			
	Residential	Non residential	Residential		Non residential	
			10-6	10-5	HI-1	
PCE	53	170	0.51	5.1	na	13
TCE	27	70	1.1	11	na	23
Benzene	0.62	1.4	0.61	na	na	1.3
Toluene	790	2700	na	na	520 (saturation)	520 (saturation)
Ethyl benzene	1500	2700	na	na	1900	7400
Xylene	2800	2800	na	na	270	420 (saturation)
Arsenic	10	10	10	na	na	10
Chromium VI	30	64	31	na	na	65
Lead	400	2000	na	na	400	800
Manganese	3200	43,000	na	na	3300	32000
Dieldrin	0.28	1.2	.034	0.34	na	1.1
Toxaphene	4	17	0.5	5.0	na	16

(Some figures may change as technical review continues)

Proposed Revisions: Site Specific Standard

- Nitrates and Nitrites:
 - No predetermined cleanup standard because no threat is posed through ingestion, inhalation or dermal contact
 - May impact groundwater or ecological receptors
 - Site specific standard must be protective of groundwater and ecological receptors

Proposed Revisions: VEMUR to DEUR

- In 2000, Declaration of Environmental Use Restriction replaced Voluntary Environmental Mitigation Use Restriction in statute
- Restrictive covenants required for institutional or engineering control



Proposed Revisions: Closure Document

- Letter of completion language changed to account for program specific closure documents authorized by statute (NFA's, LUST closures, etc.)



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